



GOKULAM BIOTECH



- ◆ BIOFERTILIZERS
- ◆ BIOPESTICIDES
- ◆ BIOFUNGICIDES
- ◆ BIOCOMPOST CULTURES

LIQUID BIOINOCULANTS

Organic Certification by ISCOF

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❖ SOIL HEALTH ❖ ENVIRONMENT PROTECTION ❖ ORGANIC FARMING

Organic agriculture and use of biofertilizers

In the olden days, farming was carried out in a traditional manner. Most farmers used to have a number of farm animals in their farm and the farmyard manure generated in the farm was used for raising crops. In addition, most of the farm-generated biomass was also used for raising crops. No chemical fertilizers or pesticides were heard of or used. During this time period, farmers were getting very low yield of crops, but were getting very good quality produce. However, the yield obtained by farmers using this traditional method of farming was not adequate to meet the food demands of the growing population.

Through green revolution, India was able to meet food demands of its growing population. Hybrid varieties of crops not only required higher inputs of chemical fertilizers, but also were susceptible to many insect pests and diseases. This created high demand and indiscriminate usage of pesticides and fungicides. Crops thus grown also contained high residues of chemical pesticides which are detrimental to health.

Year after year, addition of chemical fertilizers also had depleted beneficial microbes from the soil. This, combined with lesser and lesser application of farmyard manure, resulted in lower bioactivity of soil and crop yield.

Application of chemical fertilizers results in ground water contamination by nitrates leaching through the soil profile. Denitrification of nitrogenous fertilizers from soil, and gases from such process contribute to greenhouse effect/alteration of ozone layer. Most of all, a small proportion of nitrogen, about 50% of phosphates and 100% potash are imported, causing a strain on the foreign exchange reserve. The above scenario led agriculture into a full circle where organic manure biofertilizers regained importance.

In order to improve soil health, protect the environment, and provide nutrients to crops in a natural way, GOKULAM BIOTECH has introduced various BIOFERTILIZERS in LIQUID formulations.

Liquid formulations of biofertilizers of GOKULAM BIOTECH are better in terms of virulency and shelf life than carrier - based biofertilizers or liquid broth formulations. LIQUID biofertilizers of GOKULAM BIOTECH have a shelf life of more than one year.

LIQUID BIOFERTILIZERS	
1. KRISHI - Azospirillum	2. KRISHI - Phosphobacterium
3. KRISHI - Potash Mobiliser	4. KRISHI - Zinc Solubiliser
5. KRISHI - Silicate Solubiliser	6. KRISHI - Acetobacter
7. KRISHI - Flower Booster	8. KRISHI - Krishizyme
9. KRISHI - Rhizosphere pH Regulator	

INDIVIDUAL BIOFERTILIZERS

1. KRISHI-AZOSPIRILLUM:

KRISHI-Azospirillum is a beneficial soil-borne bacterium capable of fixing considerable quantity of nitrogen in soil. This bacterium, when applied to soil, multiplies in billions and absorbs atmospheric nitrogen and fixes it in the root zone of soil. While addition of urea gives readily available form of nitrogen to the plant, Azospirillum slowly improves soil nitrogen status by fixing atmospheric nitrogen. Addition of well-decomposed organic manure is very important for multiplication of Azospirillum. Repeated addition of Azospirillum will help to reduce application of nitrogenous fertilizers.

KRISHI-Azospirillum has CFU count of 2×10^9 / ml and can be used for all crops. Since KRISHI-Azospirillum is in liquid formulation, it can be easily applied to soil or through the drip irrigation system.

Dosage: 250 ml per acre in adequate quantity of water or applied mixed with small quantity of well-decomposed organic manure.

2. KRISHI-PHOSPHOBACTERIUM:

KRISHI-Phosphobacterium is a liquid biofertilizer containing pure culture of naturally occurring soil-borne phosphorus solubilising bacterium. When applied to the soil, KRISHI-Phosphobacterium multiplies, produces organic acids and converts insoluble inorganic phosphatic compounds in soil into soluble form and makes them available to plants. Long term application of KRISHI-Phosphobacterium will help to reduce application of phosphatic fertilizers.

KRISHI-Phosphobacterium has CFU count of 2×10^9 / ml and can be used for all crops. Since KRISHI-Phosphobacterium is in liquid formulation, it can be easily applied to the soil or through the drip irrigation system.

Dosage: 250 ml per acre in adequate quantity of water or applied mixed with small quantity of well-decomposed organic manure.

3. KRISHI-POTASH MOBILIZER:

KRISHI-Potash Mobiliser is a liquid biofertilizer containing pure cultures of naturally occurring soil-borne Potash Mobilising bacterium. When applied to soil, KRISHI-Potash Mobilising bacterium multiplies, and mobilises insoluble potassium in soil. This mobilized potassium is easily available to the plants and reduces potassium application.

KRISHI-Potash Mobiliser has CFU count of 2×10^9 / ml and can be used for all crops. Since KRISHI-Potash Mobiliser is in liquid formulation, it can be easily applied to the soil or through the drip irrigation system.

Dosage: 250 ml per acre in adequate quantity of water or applied mixed with small quantity of well-decomposed organic manure.

4. KRISHI - ZINC SOLUBILISER :

KRISHI-Zinc Solubiliser is a liquid biofertilizer containing pure cultures of naturally-occurring soil-borne Zinc Solubilising bacterium. When applied to soil, KRISHI-Zinc Solubiliser bacterium multiplies, secretes organic acids and helps to solubilise insoluble zinc in soil. Zinc thus mobilized is easily available to the plants.

KRISHI-Zinc Solubiliser has CFU count of 2×10^9 / ml and can be used for all crops. Since KRISHI-Zinc Solubiliser is in liquid formulation, it can be easily applied to the soil or through the drip irrigation system.

Dosage: 250 ml per acre in adequate quantity of water or applied along with well-decomposed organic manure.

5. KRISHI - SILICATE SOLUBILISER :

For the first time, a bacterium capable of solubilising insoluble silica in soil is introduced to the farming community. Use of Silicate Solubiliser improves silica nutrition of plants and renders them tolerant to lodging, drought and attack by insects/pests and diseases.

Krishi-Silicate Solubiliser is a liquid biofertilizer containing pure cultures of naturally-occurring silicate solubilising bacterium with a CFU of 2×10^9 /ml and can be used for all crops. Through secretion of specific organic acids, it solubilises insoluble silica present in the soil.

Dosage: 250 ml per acre in adequate quantity of water or applied along with well-decomposed organic manure or through the drip irrigation system.

6. KRISHI - ACETOBACTER :

This is also referred to recently as Gluconacetobacter and is recommended as a biofertilizer for sugarcane. Similar to Azospirillum, it is capable of fixing atmospheric nitrogen, but it enters the plant through the root and fixes nitrogen in the leaves and stem of sugarcane. CFU = 2×10^9 per ml.

Dosage: 250 ml per acre in adequate quantity of water or applied along with well-decomposed organic manure or through the drip irrigation system. For seed treatment, Krishi-Acetobacter can be used at the rate of 50 ml for seed material meant for planting one acre.

10. KRISHI - RHIZOSPHERE pH REGULATOR (RPHR) :

Krishi – Rhizosphere pH Regulator is a unique product developed for soil having an alkaline pH range.

Krishi - Rhizosphere pH Regulating Bacteria (RPHR), contains a consortia of bacteria, (Thiobacillus sp; CFU = 2×10^9 per ml), which are capable of producing organic sulphuric acid and reducing the pH of soil at the rhizosphere.

Dosage: Krishi – RPHR is recommended up to 500 ml per acre mixed with well-decomposed organic manure or applied in fertigation through drip irrigation system. Effective reduction of rhizosphere pH can be achieved when Krishi- RPHR is applied along with recommended dose of gypsum.

BIOCOMPOSTING

1. KRISHI - BIOCOMPOST MIXTURE (BCM) :

Krishi – Biocompost mixture contains a consortia of fungal and bacterial cultures useful for composting of organic wastes, such as farm waste, coil pith, sugar cane leaves, banana pseudostem, press mud etc.

Dosage: Recommended at the rate of 3 liters of Krishi – Biocompost Mixture per 10 MT of biomass.

2. Krishi – Compost Enrichment Culture:

Krishi – Compost Enrichment culture contains a consortia of bioinoculants which are useful for fixation of atmospheric nitrogen and solubilisation of unavailable form of minerals present in soil. It is recommended for mixing with press-mud, vermicompost and other organic manures. Enrichment of compost with Krishi – Compost Enrichment Culture will enhance the nutritive value of manure. It is recommended at the rate of 2 to 3 liters per 10 MT of compost.

BIO-PRODUCTS BASED ON BIOFERTILIZER CONSORTIA

1. Krishi - Mulberry Bio-Booster:-

A bacterial formulation, which contains a consortia of biofertilizers necessary for augmenting vegetative growth of mulberry and improve efficiency of utilization of applied chemical fertilizers from soil. Total bacterial count CFU 2×10^9 per ml. Krishi – Mulberry Bio-Booster is recommended at the rate of one liter per acre and at a frequency of at least 4 to 5 times per year. Krishi-Mulberry Bio-Booster is currently being sold to farmers in Andhra Pradesh through Sericulture Federation, Andhra Pradesh.

2. Krishi – Sugar Cane Growth and Yield Boosters:

Sugar Cane Growth and Yield Booster contains a consortia of bioinoculants required at different stages of growth of sugar cane crop. Growth Boosters #1, #2 and #3 are recommended for soil application at basal, 45th day (first earthing-up) and 90th day (second earthing-up) after planting. Yield boosters #4 and #5 are recommended for application at monthly intervals between 4 to 8th month after planting. Krishi- Sugar cane growth and yield boosters are recommended @ one liter per acre. Repeated soil applications of yield boosters from 4 to 8th month at monthly interval will be beneficial for increasing cane weight and sugar recovery.

3. Krishi – Casuarina Bio-Booster (# 1, 2 and 3):

Krishi – Casuarina Bio-Booster contains a consortia of bioinoculants required at different stages of growth of casuarina crop.

Krishi-Casuarina Bio-Booster No:1 contains biofertilizers such as Azospirillum, Phosphobacterium and Potash Mobiliser in proportions required by the young casuarina plants during early vegetative growth phase. It facilitates early and proper development of root system and encourages maximum vegetative growth.

Krishi-Casuarina Bio-Booster No:2 contains biofertilizers such as Azospirillum, Phosphobacterium, Potash Mobiliser, Zinc solubiliser and Silicate solubiliser in proportions required for growing trees.

Krishi-Casuarina Bio-Booster No:3 contains biofertilizers such as Potash Mobiliser and Silicate solubiliser in proper proportions required for established trees and is helpful for increasing girth of tree trunk and maximizing soft wood weight.

4. Krishi – Coconut Bio-Booster:

A bacterial formulation, which contains a consortia of biofertilizers necessary for augmenting growth and production. Coconut Bio-booster contains biofertilizers such as Azospirillum, Phosphobacterium, Potash Mobiliser, Zinc Solubiliser and Silicate Solubiliser. Total bacterial count, CFU 2×10^9 per ml. Krishi – Coconut Bio-Booster is recommended as soil application at the rate of 1 to 2 liters per acre or about 25 to 50 ml per tree.

5. Krishi – Growth and Yield Booster (General):

Krishi Growth Booster and Krishi Yield Booster are bio-products useful for boosting performance of all crops of commercial importance.

Krishi – Growth Booster is formulated using Polyfunctional Microbe technology and contains a consortia of beneficial microbes blended in balanced proportion with a total microbial count of CFU 2×10^9 per ml.

It can be applied to soil during post-flowering and reproductive stages of crop growth for boosting yield. In addition to boosting growth, Krishi – Yield Booster also helps crops to build their resistance against biotic and abiotic stress. Krishi – Yield Booster is formulated using Polyfunctional Microbe (PFM) based liquid bio-inoculants technology and contains a consortia of beneficial microbes blended in balanced proportion with a total microbial count of CFU 2×10^9 per ml (minimum).

GROWTH ENHANCERS

1. KRISHI - KRISHIZYME :

Krishizyme is an organic growth promoter and a fermentation product obtained from various beneficial organisms. It contains amino acids, enzymes and other beneficial growth factors. Krishizyme improves crop growth by improving photosynthetic rates of plants and makes the plant resistant to pests and diseases by making balanced nutrition available to plants.

Dosage: 250 ml per acre in adequate quantity of water and sprayed on the leaf system of plants. Krishizyme can be applied once during vegetative growth phase and again during reproductive phase of the crop growth.

2. KRISHI - ROOTPLUS :

Root Plus is a bio-stimulant containing factors capable of stimulating root development in seedlings especially after transplantation. It contains a mixture of nutrients and metabolites of microbial origin. Krishi - Rootplus helps seedlings to forage water and nutrients from a larger soil area, grow uniformly and recover from transplantation shock.

Target Crops: Rootplus is highly recommended for transplanted crops particularly vegetable crops like tomato, chili, capsicum, and other horticultural crops.

Dosage & Directions for use: Krishi - Rootplus is recommended at the rate of 250 to 500 ml/acre at frequent intervals following transplantation. Rootplus can also be applied through fertigation. Small quantity of Rootplus can also be applied to seedling trays a few days before transplantation.

3. KRISHI - FLOWER BOOSTER :

Krishi – Flower booster is an organic growth improver and a fermentation product obtained from various beneficial microbes. It contains amino acids, beneficial growth factors, humic acid, seaweed extract and enzymes.

Krishi – Flower Booster not only improves flowering, but also improves fruit setting and prevents early dropping of fruits and flowers. It is recommended for all crops.

Dosage: 250 ml per acre in 250 lit of water. Krishi – Flower Booster is recommended as a foliar spray once during pre-flowering phase and after fruit setting.

4. Krishi – Seaweed Extract Bio-fertilizer:

Seaweed Extract bio-fertilizer is a source of several natural plant growth regulators such as cytokinins, auxins, betaines, oligosaccharides and other organic compounds such as macro and micro-nutrients. Krishi – Seaweed Extract bio-fertilizer is a formulated product containing naturally-occurring seaweed extract from *Sargassum* seaweed, and is enriched with humic acid, amino acids and selected bioinoculants & their metabolites.

Krishi- Seaweed Extract Bio-fertilizer is recommended as foliar spray @ 1 to 2 ml per liter of water or about 250 to 500 ml per acre. It can be sprayed at different stages of crop growth obtaining proper crop response. For soil drenching, Krishi – Seaweed extract can be used at the rate of 1 to 2 liters per acre.

5. Krishi – Humiforte:

Krishi - Humiforte contains humic acid 12%, fortified with metabolites derived from beneficial microorganisms. Krishi – Humiforte helps plant growth and revitalizes soil. Humiforte improves macro and micro nutrients uptake from soil and their utilization in plants, enhances plant's enzymatic activity, accelerates photosynthesis, stimulates flowering and fruit setting, improves soil water holding and Cation Exchange Capacity (CEC), reduces nutrient leaching, acts as a natural chelator, increases nutrient availability and improves germination. Krishi-Humiforte is recommended for all crops at the rate of 500 ml per acre as soil application or 2 to 3 ml per liter as foliar spray.

REPLACEMENT OF CHEMICAL FERTILIZERS BY BIOFERTILIZERS

Biofertilizers cannot replace chemical fertilizers immediately. Therefore, attempts should not be made to drastically or totally replace chemical fertilizers with biofertilizers. Abrupt change from use of chemical fertilizers to biofertilizers will affect crop yield. In the long run and with repeated application of biofertilizers along with well decomposed organic manure, it will be possible to reduce the dose of application of chemical fertilizers.

BENEFITS OF BIOFERTILIZERS

1. By using biofertilizers, one can decrease the use of chemical fertilizers by about 25 to 50%.
2. Biofertilizers are capable of increasing crop yield by about 10 to 25%.
3. Biofertilizers improve health of soil and bioactivity.
4. Biofertilizers are environment friendly and therefore help to protect the environment from the effects of harmful chemicals.
5. Biofertilizers inhabit the rhizosphere and during their multiplication and growth, secrete organic growth factors which are important for crop growth.

KRISHI - BIOPESTICIDES		
Name	Organism	Function
1. Verelac	(<i>Verticillium lecanii</i>)	: For controlling soft bodied insects.
2. Beevicide	(<i>Beauveria bassiana</i>)	: For controlling hardbodied insects and borers.
3. Grubkill	(Combined formulation of entomopathogenic fungi)	: For control of hardbodied insects and borers.
4. Metakill	(<i>Metarhizium anisopilae</i>)	: For control of beetles.
5. Peelicide	(Combined formulation of <i>Paecilomyces lilacinus</i> & other nematophagous fungi)	: For control of nematodes
6. Biomite	(Combined formulation of entomopathogenic fungi)	: For the control of mites.
7. Bioter	(Combined formulation of entomopathogenic fungi)	: For the control of termites.

1. KRISHI-VERELAC :

Krishi-Verelac is a biopesticide formulation based on entomopathogenic fungus, *Verticillium lecanii* with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Verelac is effective for the control of soft bodied/sucking insect pests such as aphids, mealy bugs, jassids, thrips, mites, termites, white flies etc. Spores of the fungus invade the insect body through the cuticle and proliferate inside the insect body, sporulating and causing death.

Target Crops: Paddy, Cotton, Sugarcane, Pepper, Cardamom, Banana, Potato, Turmeric, Ginger, Coffee, Grapes, Pomegranate, Groundnut and all vegetable crops.

Dosage and Directions for use: Krishi - Verelac can be used at the rate of 250 ml per acre, dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the canopy, including underside of foliage. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours.

2. KRISHI - BEEVICIDE :

Krishi-Beevicide is a biopesticide formulation containing entomopathogenic fungus, *Beauveria bassiana* with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Beevicide is effective for the control of hard bodied insects such as caterpillars, borers, beetles and grubs. Spores of the fungus invade the insect body through the cuticle and proliferate inside insect body, sporulating and causing death.

Target Crops: Paddy, Cotton, Sugarcane, Pepper, Cardamom, Banana, Potato, Turmeric, Ginger, Coffee, Grapes, Pomegranate, Groundnut and all vegetable crops.

Dosage and Directions for use: Krishi-Beevicide can be used at the rate of 250 ml per acre, dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the canopy, including underside of foliage. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours.

3. KRISHI - GRUBKILL :

Krishi-Grubkill is a combined biopesticide formulation containing *Beauveria bassiana* and a few other entomopathogenic fungi, with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Grubkill is effective for the control of hardbodied insects such as caterpillars, borers, beetles and grubs. Spores of the fungus invade insect body through the cuticle and proliferate inside insect body, sporulating and causing death.

Target Crops: Paddy, Cotton, Sugarcane, Pepper, Cardamom, Banana, Potato, Turmeric, Ginger, Coffee, Grapes, Pomegranate, Groundnut and all vegetable crops.

Dosage and Directions for use: Krishi - Grubkill can be used at the rate of 250 ml per acre, dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the canopy, including underside of foliage. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours.

4. KRISHI - METAKILL :

Krishi-Metakill is a biopesticide formulation containing entomopathogenic fungus, *Metarhizium anisopilae*, with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Metakill is effective for the control of hard-bodied beetles. Spores

of the fungus invade the insect body through the cuticle and proliferate inside insect body, sporulating and causing death.

Target Crops: Paddy, Cotton, Sugarcane, Pepper, Cardamom, Banana, Potato, Turmeric, Ginger, Coffee, Grapes, Pomegranate, Groundnut and all vegetable crops.

Dosage and Directions for use: Krishi - Metakill should be used at the rate of 250 ml per acre dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the plant canopy, including underside of foliage. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours.

5. KRISHI - PELICIDE :

Krishi-Pelicide is a biopesticide formulation based on a consortia of nematophagous fungus such as *Paecilomyces lilacinus* etc, with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Pelicide is effective for the control of plant parasitic nematodes in soil. Spores of the fungus invade nematodes, proliferate inside the body, sporulating and causing death.

Target Crops: Krishi-Pelicide is effective for the control of nematode attack in all vegetable crops, Banana, Turmeric, Potato, Cotton, Sugarcane, Pepper, Cardamom, Ginger, Coffee, Grapes, Pomegranate, Groundnut and other crops.

Dosage and Directions for use: Based on severity of nematode infestation, Krishi - Pelicide can be used up to 1000 ml per acre dissolved in 250 to 400 liters of water. Root zone of affected crops should be thoroughly drenched with the Krishi - Pelicide formulation.

6. KRISHI - BIOMITE :

Krishi-Biomite is a combined biopesticide formulation based on entomopathogenic fungus, *Hirsutella thompsonii* and *Verticillium lecanii* with a CFU of 2×10^8 per ml.

Target Pests: Krishi-Biomite is effective for the control of mite infestation in crops especially euophid mites in coconut. Spores of the fungus invade the soft body of the mite through the cuticle. They proliferate inside the insect body, sporulate and cause death.

Target Crops: Coconut, Paddy, Cotton, Sugarcane, Banana, Floriculture crops and all vegetable crops.

Dosage and Directions for use: Krishi-Biomite can be used at the rate of 250 ml per acre to be dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the canopy, including underside of foliage. For control of euophid mite of coconut, Krishi-Biomite should be sprayed directly on all tender nuts. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours.

7. KRISHI - BIOTER :

Krishi-Bioter is a formulation based on a consortia of entomopathogenic fungi having termiticidal properties. CFU = 2×10^8 per ml

Target Pests: Krishi-Bioter is effective for the control of termites in crop plants. Spores of the fungus invade termite's body, proliferate inside the insect body, sporulate and cause death.

Dosage and Directions for use: Krishi-Bioter should be used at the rate of 250 ml per acre to be dissolved in 250 to 400 liters of water and used for drenching the soil. Krishi - Bioter can also be sprayed on aerial parts for controlling termite infestation on tree trunks.

KRISHI - BIOFUNGICIDES		
Name	Organism	Function
1. Tricho	(<i>Trichoderma viride</i>)	: Controls soil borne pathogens.
2. Trypae Mix	(<i>Trichoderma viride</i> + <i>Paecilomyces liacinus</i>)	: For combined control of pathogens and nematodes.
3. Pseudo	(<i>Pseudomonas fluorescens</i>)	: Controls foliar diseases.
4. Biobligh	(Consortia of bacterial antagonist)	: Controls bacterial diseases.
5. Pepper Wilt Control Mix	(Combined Bio-formulation)	: Controls wilt disease of black pepper

1. KRISHI - TRICHO :

Krishi-Tricho is a biofungicide consisting of antagonistic fungus *Trichoderma viride* at a CFU of 2×10^8 per ml. It is a well-known suppressor of soil borne disease-causing organisms by way of competition for space, food, mycoparasitism and through production of metabolites toxic to disease-causing fungal pathogens.

Krishi-Tricho is useful for the control of Rhizome rot of turmeric and cardamom, Fusarium wilt of banana, wilt disease of pepper, beetelvine, chilies, tomato and vegetables and other diseases caused by pathogenic fungi such as *Phytophthora*, *Pythium*, *Sclerotium* etc.

Target Crops: Pepper, Cardamom, Ginger, Turmeric, Banana, Cabbage and all vegetables, Potato, Pomegranate and other crops.

Dosage and directions for use: Krishi-Tricho should be used at the rate of 250 ml per acre dissolved in required quantity of water or mixed with well-decomposed organic manure.

2. KRISHI - TRYPAE MIX :

Krishi-Trypae Mixture is a biofungicide formulation containing *Trichoderma viride* and *Paecilomyces lilacinus* in a 50:50 proportion. It is useful for the simultaneous control of soil-borne fungal pathogens and nematodes. *Trichoderma viride* is a well-known suppressor of soil-borne disease-causing organism. *Paecilomyces* is a nematocidal fungus capable of controlling soil-borne plant parasitic nematodes.

Krishi-Trypae Mixture is useful for the control of rhizome rot of turmeric and cardamom, Fusarium wilt of banana, wilt disease of pepper, beetelvine, chilie, tomato and vegetables and other diseases caused by pathogenic fungi such as Phytophthora, Pythium, Sclerotium etc. and plant parasitic nematodes such as root-knot nematodes, cyst nematodes and burrowing nematodes.

Target Crops: Pepper, Cardamom, Ginger, Turmeric, Banana, Cabbage and all vegetables, Potato, Pomegranate and other crops.

Dosage and directions for use: Krishi-Trypae Mix should be used at the rate of 250 ml to 1000 ml per acre depending on the severity of disease. It should be dissolved in required quantity of water or mixed with well-decomposed organic manure and applied to soil.

3. KRISHI - PSEUDOMONAS :

Krishi-Pseudomonas is a biofungicide formulation containing plant growth promoting cum disease preventing bacterium, *Pseudomonas fluorescens* with a CFU of 2×10^9 per ml.

Krishi-Pseudomonas is useful for controlling most foliar diseases and certain soil-borne diseases.

Target Crops: All foliar diseases of Paddy, Cotton, Sugarcane, Pepper, Cardamom, Banana, Turmeric, Grapes, Citrus, Mango, Groundnut, Pomegranate, Coffee, Tea and all vegetable crops.

Dosage and Directions for use: Krishi-Pseudomonas should be used at the rate of 250 ml per acre to be dissolved in 250 to 400 liters of water and sprayed thoroughly drenching the canopy. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours. Spraying of Krishi - Pseudomonas should be repeated at 10 to 15-day intervals based on severity of disease. Besides foliar spraying, Krishi-Pseudomonas can be used for seed treatment, dipping seedlings and for soil application.

4. KRISHI - BIOBLIGHT :

Krishi-Biobligh is a formulation containing a consortia of bacterial antagonists for the control of foliar and soil-borne bacterial diseases. CFU = 2×10^9 /ml.

Target Crops: Bacterial diseases of Paddy, Cotton, Sugarcane, Vegetables, Pomegranate and other crops.

Dosage and Directions for use: Krishi - Biobligh should be used at the rate of 250 to 500 ml per acre, dissolved in 250 to 400 liters of water and sprayed thoroughly, drenching the canopy or the root zone of crops. Spraying must be carried out during the cooler periods of the day, preferably during late evening hours. Spraying of Krishi-Biobligh should be repeated at 10 to 15-day intervals based on severity of disease.

5. KRISHI - PEPPER WILT CONTROL MIX :

Krishi – Pepper Wilt Control mix contains a consortia of bacterial and fungal antagonists useful for the prevention and control of wilt causing organisms. In addition to disease control, Krishi-Pepper Wilt Control Mix is also effective for the control of plant parasitic nematodes in soil.

Dosage: Recommended at the rate of 500 to 1000 ml per acre.

Precautions for use and Storage of Biopesticides and Fungicides :

Spraying of chemical fungicides and antibiotics should be avoided seven days before and after application of biopesticides and fungicides. Bottle containing bioinoculants should be stored in a cool and dry place away from direct sunlight.

ADVANTAGES OF LIQUID BIOINOCULANTS
<ol style="list-style-type: none"> 1. Easy to handle and transport. 2. Readily miscible in water. 3. No requirement of additives. 4. Shelf life more than a year at normal temperature. 5. Highly purified concentrate. 6. Less contamination. 7. Less quantity requirement per acre when compared to powder type of biofertilizers / biopesticides / biofungicides. 8. Better efficacy than normal powder formulations or broth type liquid formulations.

CARRIER-BASED FORMULATION OF BIOPESTICIDES:

In addition to liquid technology based biopesticides, the following traditional talc based biopesticides are also available:

Biopesticide	Function	Packing
Krishi – Trichoderma*	For control of soil-borne fungal pathogens	1 and 5 kg
Krishi – Pseudomonas*	For control of foliar diseases	1 and 5 kg
Krishi – Pacilomyces*	For control of nematodes in soil	1 and 5 kg
Krishi – Bio-A-Cnose	For anthracnose control in pomegranate & other fruit crops	1 and 5 kg
Krishi – Wilt Management Formula (WMF)	For wilt management in pomegranate & other crops	1 and 5 kg
Krishi – Phyllo Sanitizer	Useful for bio-sanitization of above ground parts of plants	1 and 5 kg
Krishi – Rhizo Sanitizer	Useful for bio-sanitization of rhizosphere	1 and 5 kg
Krishi – Grubguard	For control of soil grubs	1 and 5 kg

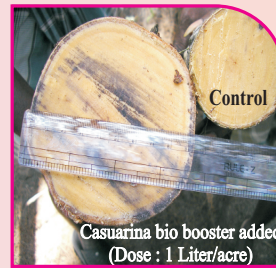
*Registered with Central Insecticide Board

All the above carrier-based biopesticides have a shelf-life of minimum one year and CFU as per CIB specifications.

Talc based biopesticides are available in 1 kg and 5 kg packing.



Management of bacterial blight disease of pomegranate using Krishi-BioBlight



Krishi-Casuarina Bio Booster in casuarina cultivation



Fusarium wilt of banana

Sigatoka leaf spot

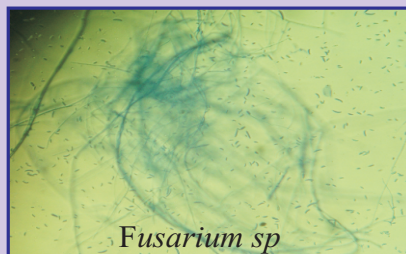
Gokulam bio products for control of Fusarium wilt and Sigatoka leaf spot disease of banana



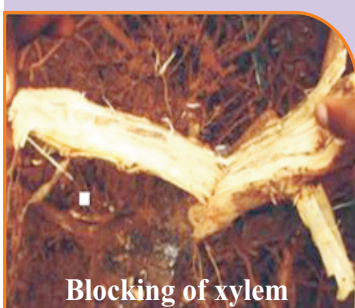
Composting of biomass using Krishi-Bio Compost Mix (BCM)



Biocontrol of mealy bugs in grapes using Krishi-Verelac



Biocontrol of wilt disease of pepper using Krishi-Pepper Wilt Control Mix



Management of die-back disease of pomegranate using Krishi-TryPae Mix



More Leaf Area



More No. of tillers



More Inter node length



More Cane Girth



Sugarcane Growth & Yield Boosters



Biocontrol of rhizome rot and leaf spot of turmeric Krishi-TryPae Mix and Krishi-Pseudomonas



Management of anthracnose/cercospora disease of pomegranate using Krishi-BioAcnoso



Biocontrol of soil grubs using Krishi-Grubkill & Krishi-Grubguard (Powder Formulation)



CARRIER-BASED FORMULATION OF BIOPESTICIDES:

GOKULAM BIOTECH

LIQUID BIOINOCULANTS



CARRIER-BASED FORMULATION OF BIOPESTICIDES:

KRISHI-PSEUDO
Pseudomonas fluorescens - 1.5% WP
As Eco-Friendly Bio-product

Biological mode of action: KRISHI - PSEUDO is a bio-based spore formulation of Pseudomonas which is useful for the control of soil-borne plant pathogens such as wilt and root rot. It controls pathogens long in and by way of competition for space and food, through parasitism and antibiosis.

Target crop/diseases: Bacterial wilt of tomatoes and its caused by *Bacterium* spp. wilt rot caused by *Fusarium* spp. wilt rot diseases caused by *Colletotrichum*, *Colletotrichum*, *Aspergillus* etc. in crops such as paddy, pomogranate, cotton, grapes, sugarcane, pulses, cardamom, banana, banana, grapes, citrus, mango, ground nut, coffee, banana and vegetables.

Usage and directions for use: For soil drenching and foliar spraying. KRISHI - PSEUDO is recommended (0.5 kg/ha) in paddy, 20-30 days after sowing. KRISHI - PSEUDO should be applied to the root zone of crops in wet with organic manure or the water suspension of KRISHI - PSEUDO should be applied through the irrigation system. Spraying of KRISHI - PSEUDO must be carried out during cooler periods of the day, especially after 4 PM.

Precautions: Foliar spraying of chemicals such as fungicides and other antibiotics must be avoided one week before and after application of KRISHI - PSEUDO.

Shelf-life: Minimum one year from the date of packaging.

Storage: KRISHI - PSEUDO must be kept in a cool and dry place away from direct sunlight.

Manufactured by:
Gokulam Biotech
No. 30, 2nd Floor,
Pondicherry Main Road,
Kanniyakumari District,
Cuddalore (Pin-605 001)
Email: info@gokulam.com

Net Content: 1 Kg
Batch No.:
Mfg. Date:
Exp. Date:
M.R.P. Rs. (inclusive of taxes)

KRISHI-TRICHO
Trichoderma viride - 1.5% WP
As Eco-Friendly Bio-product

Biological mode of action: KRISHI - TRICHO is a bio-based spore formulation of *Trichoderma* which is useful for the control of soil-borne plant pathogens such as wilt and root rot. It controls pathogens long in and by way of competition for space and food, through parasitism and antibiosis.

Target crop/diseases: Bacterial wilt of tomatoes and its caused by *Bacterium* spp. wilt rot caused by *Fusarium* spp. wilt rot diseases caused by *Colletotrichum*, *Colletotrichum*, *Aspergillus* etc. in crops such as paddy, pomogranate, cotton, grapes, sugarcane, pulses, cardamom, banana, banana, grapes, citrus, mango, ground nut, coffee, banana and vegetables.

Usage and directions for use: For soil drenching and foliar spraying. KRISHI - TRICHO is recommended (0.5 kg/ha) in paddy, 20-30 days after sowing. KRISHI - TRICHO should be applied to the root zone of crops in wet with organic manure or the water suspension of KRISHI - TRICHO should be applied through the irrigation system. Spraying of KRISHI - TRICHO must be carried out during cooler periods of the day, especially after 4 PM.

Precautions: Foliar spraying of chemicals such as fungicides and other antibiotics must be avoided one week before and after application of KRISHI - TRICHO.

Shelf-life: Minimum one year from the date of packaging.

Storage: KRISHI - TRICHO must be kept in a cool and dry place away from direct sunlight.

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M.R.P. Rs. (inclusive of taxes)

KRISHI-WME
Wilt Management Formula
As Eco-Friendly Bio-product

Biological mode of action: KRISHI - WME is a bio-based spore formulation containing of antagonistic microbes which is useful for the suppression of wilt causing pathogens and nematodes in soil. CRU = 2 x 10¹⁰ per gram, it is useful for the control of wilt diseases of tomatoes and other crops.

Target Crops: All vegetable crops, pomogranate, banana, black pepper, grapes, banana and other crops that are susceptible to nematode attack.

Usage and directions for use: KRISHI - WME is recommended (0.5 kg/ha) it should be applied to soil mixed with FYM or by drenching the root zone of the affected crops with the water suspension of KRISHI-WME at 15-20 days after sowing.

Precautions: The application of chemicals such as antibiotics and fungicides must be avoided one week before and after application of KRISHI - WME.

Shelf-life: Minimum one year from the date of packaging.

Storage: KRISHI - WME must be kept in a cool and dry place away from direct sunlight.

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Kanniyakumari District,
Cuddalore (Pin-605 001)
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Net Content: 1 Kg
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Exp. Date:
M.R.P. Rs. (inclusive of taxes)

KRISHI PHYLLO SANITIZER
As Eco-Friendly Bio-product

Biological mode of action: KRISHI - PHYLLO SANITIZER is a bio-based spore formulation of *Bacillus* spp. which is useful for the control of bacterial wilt and other foliar diseases. It is useful for the control of bacterial wilt and other foliar diseases. It is useful for the control of bacterial wilt and other foliar diseases. It is useful for the control of bacterial wilt and other foliar diseases.

Target crops: Pomogranate and other vegetables & sugarcane.

Usage and directions for use: For foliar spraying. KRISHI - PHYLLO SANITIZER is recommended (0.5 kg/ha) at 15-20 days after sowing. The crop should be sprayed with KRISHI - PHYLLO SANITIZER mixed with FYM or FYM. It is useful for the control of bacterial wilt and other foliar diseases. It is useful for the control of bacterial wilt and other foliar diseases. It is useful for the control of bacterial wilt and other foliar diseases.

Precautions: Foliar spraying of chemicals such as antibiotics and fungicides must be avoided one week before and after application of KRISHI - PHYLLO SANITIZER.

Shelf-life: Minimum one year from the date of packaging.

Storage: KRISHI - PHYLLO SANITIZER must be kept in a cool and dry place away from direct sunlight.

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